



September 9, 2004

TO: EQB Board Members

FROM: Alan Mitchell *AM*
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EQB Staff

SUBJECT: **Route Permit to Xcel Energy for Construction of a 161 kV High Voltage Transmission Line and Associated Facilities in Martin and Jackson Counties. (EQB Docket No. 03-64-TR-XCEL)**

Action

The Board is asked to issue a Route Permit to Xcel Energy for a new 161 kilovolt (kV) high voltage transmission line (HVTL) and associated facilities extending from the Lakefield Junction Substation in Jackson County on the west to the Fox Lake Substation in Martin County on the east for a distance of approximately 26 miles.

When the staff prepared the material for this matter for the August Board meeting, the staff and Xcel were in disagreement regarding what should be required of Xcel Energy if it determined to cross over to the opposite side of Interstate I-90 from what was anticipated, and two versions of the permit and other supporting documents reflecting the two views were included in the Board packet. EQB staff and Xcel Energy representatives have continued to address this issue and have now come to an agreement on language. Therefore, there is only one version of the Findings, Conclusions, and Order and Route Permit in your packet. All four significant issues that arose during the course of this proceeding have now been resolved. These issues are discussed below.

Background

In March 2003 the Public Utilities Commission issued a certificate of need to Xcel Energy for four new transmission lines in the Buffalo Ridge area. This 161 kV transmission line is the first one to come before the EQB for designation of a route.

Because of the voltage of the proposed line (under 200 kilovolts), the alternative permitting process was applicable in this case. That process requires the EQB to prepare an Environmental Assessment and to hold a public hearing. The EA was completed in April and a public hearing



was held on May 25, 2004. Administrative Law Judge Allan W. Klein presided at the hearing. Judge Klein issued his Report and Recommendation on July 1, 2004.

In July 2003, the EQB Chair appointed a Citizen Advisory Task Force to identify particular impacts and possible route alternatives to evaluate in the environmental review process. The Task Force completed its charge in February and issued a report on February 26, 2004. The Task Force preferred the route along the existing Alliant line north of the freeway and desired that the existing line be double-circuited with the new line. The Task Force report is Appendix B in the Environmental Assessment.

Route Options

There were two possible routes that were examined as part of the review. One route, the one preferred by Xcel, runs basically along the I-90 freeway. The other route is a couple of miles north of the freeway and runs parallel to an existing 161 kV line owned by Alliant Energy.

The I-90 route preferred by Xcel runs through the City of Jackson. Several route options through the City were considered to address issues relating to historical resources, industrial parks, and the city airport.

Project Description

The project will require a new right-of-way of 45 feet when paralleling the I-90 freeway or other existing rights-of-way and 80 feet when entirely new right-of-way is required. The structures will be single pole, galvanized steel structures between 70 and 115 feet tall and spaced approximately 400 to 600 feet apart. Additional specifics about the line are presented in Attachment A to this memorandum.

ALJ Report and Recommendation

Judge Klein recommended that the EQB issue a permit designating the following route segments:

1. On the west end, from the Lakefield Junction Substation to the City of Jackson, Judge Klein recommended Xcel's preferred route along the freeway.
2. Through the City of Jackson, Judge Klein recommended the route preferred by the City and the City Advisory Task Force.
3. East of the City for approximately eight miles, Judge Klein recommended Xcel's route along the freeway.
4. On the east end in Martin County, Judge Klein said that it would be preferable if the transmission line were to turn north for a mile along County Road 7 to the point where it intersects the existing Alliant line, and then be double-circuited for three miles between County Road 7 and State Highway 4, in order to minimize the impact to several homes near the freeway along the I-90 corridor. Judge Klein, however, said that on the basis of the record, he could not determine whether this option was

ATTACHMENT A

Project Description

Transmission Structure Design: Xcel Energy is proposing to use single pole, galvanized steel, and davit arm structures for the project. The single pole structures are designed to be used for both single and double circuit transmission line configurations. See Environmental Assessment Figures 1 and 2.

The single circuit structures will range from 70 to 110 feet in height, with an average height of 80 feet and an average span length between structures of 600 feet.

The double circuit structures going into the Fox Lake Substation will be designed to accommodate 161 kV circuits on both sides of the structure. See EA Figure 1.

The double circuit 161 kV line structures will range from 75 to 115 feet in height, with an average height of 95 feet, and an average span length between structures of 400 to 600 feet.

Conductor and Shield Wire: The proposed conductor for the transmission line is 795-kcmil 26/7 aluminum core steel supported (ACSS) with seven steel core strands and 26 outer steel strands. The industry code word for this conductor is "Drake." The conductor has an overall diameter of 1.108 inches and weighs 1.094 pounds per lineal foot. For lightning protection, Xcel Energy will use 3/8-inch shield wire.

The capacity of this conductor is 1,620 amps. Average loading on the line in 2006 is expected to be around 440 amps.

Foundations: Each steel pole structure will require a hole 15 to 20 feet deep and four to six feet in diameter. The steel structures will be supported by a drilled concrete pier foundation.

Substations: Substation modifications will also be required at both substations. In addition some existing transmission lines will need to be re-routed.

Right-of-Way Requirements: Xcel's proposed transmission line project will require a right-of-way (ROW) that will vary in width from 45 to 80 feet. Where all new ROW is required, the ROW width will be 80 feet. Figure 3 in the EA depicts an 80 foot wide ROW profile for a single circuit line. Where the proposed transmission line will use existing ROW (highway, electric transmission, and railroad) by longitudinal placement of or by being located immediately adjacent to or within existing ROW, the required new ROW width may be reduced from 80 to 45 feet. See EA Figures 3 and 5. This is commonly referred to as "right-of-way sharing". Even though one linear facility may share ROW with another linear facility, new ROW is usually required, but the width of the new ROW is reduced.

feasible or not, and if it was not feasible, then Xcel's preferred option along the freeway should be approved.

The staff recommends that Judge Klein's Findings be adopted as written. In a few instances, the staff has suggested some additional language to reflect developments that occurred since the Judge issued his report. These additions are discussed below.

Significant Issues

Four significant issues arose during the course of this proceeding, and all four have now been resolved. However, it is important to discuss these issues to some extent so the Board is aware of the issue and the resolution.

1. What should be required of Xcel if it should decide to cross to the other side of the freeway from what is designated in the permit.
2. Whether three miles of the line on the east end in Martin County should be double-circuited with the Alliant 161 kV line
3. Which route through the City of Jackson should be followed.
4. Whether the line should be built to be capable of a double-circuit from the Lakefield Substation to the City of Jackson.

These issues are discussed below.

1. Which side of the I-90 Right-of-Way? Judge Klein recommended, and the staff agrees, that the route along the freeway is the route that should be approved. However, the question remains whether the permit should designate which side of the freeway the line will follow. Xcel Energy has identified the side of the freeway it intends to follow, but wants the Board to designate a 500 foot corridor on either side of the freeway so it can cross to the other side if during design Xcel Energy determines that the other side is preferable for any reason.

The staff was concerned that allowing the permittee to determine which side of the freeway to follow would leave landowners with uncertainty about whether their property would be required for the line. An interstate freeway is such a significant demarcation that the staff believed it was appropriate to establish which side of the freeway the permittee would follow and allow the line to cross only if the landowners on the other side were in agreement or the Board had a chance to consider the change.

The approach that the staff and Xcel Energy have agreed to is for the permit to designate a 500 foot corridor on either side of the freeway, but to recognize which side of the freeway Xcel Energy presently intends to follow. When Xcel Energy completes its plans and specifications and determines which side of the freeway is preferable, Xcel Energy will submit those documents to the EQB, and if Xcel Energy has decided to cross over to the other side of the freeway from what is presently anticipated, Xcel Energy must describe its reasons for doing so and the Chair has ten days in which to notify Xcel Energy that the Chair intends to ask the Board

Staff Recommendation:

The staff recommends that the Board issue a Route Permit to Xcel Energy for a 161 kilovolt transmission line along a route that generally follows the I-90 interstate freeway, as Xcel requested and the judge recommended. The attached draft permit contains maps identifying the specific route that is authorized.

The draft permit recommended by the staff contains language identifying the side of the freeway that Xcel Energy intends to follow but allows Xcel Energy to cross over to the other side if it determines during final design that the other side is preferable. However, the permit also recognizes that the Chair may elect to bring the matter of the proposed crossing to the Board for consideration if circumstances warrant.

to consider the matter. The Chair would do so only if there were concerns raised by landowners or others about the proposed change to the other side of the freeway.

Language has been added to the boilerplate permit condition regarding submission of the plans and specifications recognizing that a change to the other side of the freeway could generate reconsideration by the Board. This permit condition is Condition IV.A. on page 4 of the Permit.

Importantly, both the staff and Xcel Energy recognize that in the future, it will be helpful for Xcel Energy and the staff to focus more directly throughout the proceedings on how specifically the EQB should designate the width of the route. In many areas the Board can designate a wide route and allow the utility to determine the exact location for the transmission line during final design, but in other cases, where significant environmental and other features are affected, the EQB may desire to identify a specific route along certain portions of the line.

2. *Double-circuiting three miles of the Alliant 161 kV line between Martin County Highway 7 and State Highway 4 west of the Fox Lake Substation.* The judge found that double circuiting approximately three miles of the Alliant line west of the Fox Lake Substation on the east end would avoid impacting five homes along the freeway on this stretch. However, the judge recognized that this was a route alternative that was not addressed directly in the administrative process and that there was not information in the record to determine whether it was feasible to do this. Judge Klein recommended that this route be followed “if feasible.”

It appears to the staff based on the available information that the I-90 route is the only feasible route on this portion of the line. While Xcel does not plan to start construction on the line for another year, staff does not believe it is appropriate or necessary to delay a decision in this matter while additional information is gathered on the feasibility of double-circuiting three miles on the east end of the route. Xcel has proposed a variation of its proposed centerline alignment within the I-90 route by crossing the freeway twice between mileposts 21 and 24 to stay as far away from the homes as possible. This modification seems like a reasonable route on the east end. The Route Permit in part III.G. specifies this modified alignment within the I-90 route. On this portion of the route, the Permit does require Xcel Energy to stay on the side of the freeway proposed.

Although there is no disagreement between the staff and Xcel Energy on the specific alignment of this portion of the line, some discussion of this issue is appropriate for the Board’s consideration since the Judge’s findings need to be modified to reflect the Board’s decision and also because Xcel Energy has raised arguments about the authority of the EQB to consider the route option suggested by Judge Klein.

Because Judge Klein raised the matter of the feasibility of the double-circuiting option, the staff asked Xcel to provide information on the feasibility of double circuiting these three additional miles of Alliant line. Xcel provided an e-mail the company received from Alliant. Alliant said in the e-mail that, while it didn’t like this option, it could live with it but that there would be a negative effect on reliability. Alliant also said that taking the Alliant line out of service for the 6-8 weeks Xcel estimates it would take to complete construction of this stretch would require Alliant to run the gas turbines at the Fox Lake plant and that it would charge Xcel the \$4 million it would cost to do that. Xcel also indicated that the addition of three miles of double circuit line and one mile of new single circuit line would cost Xcel Energy another half million dollars.

When staff asked Xcel for additional information on these costs and on the possibility of reducing the length of time the line would be out of service during construction, Xcel declined to provide any additional information and instead said that this option was outside the scope of the Environmental Assessment and not within the range of alternatives available to the EQB, because the Chair's Scoping Decision said no option that required the Alliant line to be taken out of service would be examined and because the PUC determination precluded an examination of alternative system configurations. Xcel mailed directly to each Board member a copy of its August 6th letter to the Chair setting forth its arguments against this alternative.

The staff does not believe that double-circuiting three miles of the line on the east end violates the Scoping Decision or the PUC Order or any statute. The Scoping Decision and the PUC Order only said that the entire Alliant line could not be taken out of service while the entire line was being replaced. Neither the Scoping Decision nor the PUC Order precluded investigating whether a short portion of the line could be taken out of service for a limited period. In fact, Xcel has always proposed double-circuiting approximately 1.4 miles of the Alliant 161 kV line between State Highway 4 and the Fox Lake Substation and that will require the line to be out of service for approximately two weeks.

Also, Minnesota Statutes section 116C.53, subdivision 2, provides that the PUC will determine the appropriate system configuration for any new transmission line for which a certificate of need is issued. A system configuration is the two end points of a proposed new line. The EQB has not considered end points other than the Fox Lake Substation on the east and the Lakefield Junction Substation on the west. Moreover, the EQB is directed to consider the possibility of utilizing double-circuit structures to minimize right-of-way required for new transmission lines by Minnesota Statutes section 116C.57, subdivision 4(10) (applicable in this situation under section 116C.575, subdivision 8). Consideration of the feasibility of double-circuiting three miles of the line, as Judge Klein recommended, is within the Board's jurisdiction.

Xcel Energy has developed a modified route along Interstate I-90 that stays as far away from the nearby homes as possible. This route is acceptable to the staff. Findings Nos. 5 and 6 have been added to the Judge's findings to address this issue.

3. Route through the City of Jackson. The judge recognized that Xcel should follow the route preferred by the City of Jackson through the city. Xcel and the City have worked out the precise route for the line and the draft permit incorporates this agreement between Xcel and the City. The staff has addressed this matter in paragraph 4 of the draft Findings of Fact, which amends paragraph 87 of the Judge's Report.

4. Whether the line should be built to be capable of a double circuit from the Lakefield Substation to the City of Jackson. Xcel proposed to design and construct structures between the Lakefield Junction Substation and the City of Jackson that would be capable of not only the new 161 kV circuit but also a 69 kV circuit. The 69 kV circuit was intended to address a local load serving issue in the Jackson area. However, it appears now that this 69 kV circuit will not be required to address the load serving issue. Xcel has withdrawn this portion of its request. The draft permit proposed by the staff allows Xcel to install single circuit structures along this part of the route. The staff has addressed this matter in paragraph 3 of the draft Findings of Fact, which amends paragraph 70 of the Judge's Report.